

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended)

A plating apparatus, comprising:

a substrate holder capable of opening and closing for holding a substrate such that the front surface of the substrate is exposed while the back side and the edge thereof are hermetically sealed;

a plating tank for holding a plating liquid in which an anode is immersed;

a diaphragm provided in said plating tank and disposed between said anode and the substrate held by said substrate holder;

plating liquid circulating systems for circulating the plating liquid through the respective regions of said plating tank partitioned by said diaphragm; and

a deaerating unit provided in at least one of said plating liquid circulating systems ~~for maintaining the concentration of dissolved oxygen in the plating liquid between 1 μ g/l (1ppb) and 4 mg/l (4ppm).~~ said deaerating unit comprising:

a deaerating membrane which allows only gases to pass therethrough,

a vacuum pump for removing dissolved gases from the plating liquid by drawing the gases through said deaerating membrane, and

a control unit operatable to control a rotational speed of said vacuum pump to regulate the pressure on a decompressed side of said deaerating unit so as to maintain a concentration of dissolved oxygen in the plating liquid between 1 μ g/l (1 ppb) and 4 mg/l (4 ppm).

Claim 2 (Original) The plating apparatus according to claim 1, further comprising a monitoring unit disposed downstream of said deaerating unit for monitoring the concentration of dissolved oxygen in the plating liquid.

Claims 3-5 (Cancel)

Claims 6-81 (Canceled)

Claim 82 (Currently Amended)

A plating apparatus, comprising:

a substrate holder capable of opening and closing and capable of holding a substrate ~~at a substrate~~ position such that the front surface of the substrate is exposed while the back side and edge of the substrate are hermetically sealed;

a plating tank operable to hold a plating liquid and having an anode to be immersed in the plating liquid;

a diaphragm in said plating tank disposed between said anode and the substrate position, said plating tank being partitioned into regions by said diaphragm;

plating liquid circulating systems for circulating the plating liquid through respective said regions of said plating tank; and

a deaerating unit ~~in at least one of said plating liquid circulating systems operable to maintain the concentration of dissolved oxygen in said plating liquid between 1 $\mu\text{g/l}$ (1 ppb) and 4 mg/l (4 ppm)~~, said deaerating unit comprising:

a deaerating membrane which allows only gases to pass therethrough,

a vacuum pump for removing dissolved gases from the plating liquid by drawing the gases through said deaerating membrane, and

a control unit operable to control a rotational speed of said vacuum pump to regulate the pressure on a decompressed side of said deaerating unit so as to maintain a concentration of dissolved oxygen in the plating liquid between 1 $\mu\text{g/l}$ (1 ppb) and 4 mg/l (4 ppm).

Claim 83 (Previously Presented) The plating apparatus of claim 82, and further comprising a monitoring unit downstream of said deaerating unit for monitoring the concentration of dissolved oxygen in the plating liquid.